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PSYCHIC RUDIMENTS AND MORALITY.¹

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OUTLINE.

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§ 1. THE LAW OF DIFFERENTIATION.

The first law of development, and one too well known to need elaborate illustration, is that of differentiation. Animal life begins with unicellular organisms, many of them less than a thousandth of an inch in diameter, and develops by proliferation of cells into all the diverse species of the animal series. The simpler Protozoa perform the functions necessary to their existence without specialized organs, moving from place to place, absorbing and assimilating their food and reproducing their kind by processes in which the whole body is involved. Among the Metazoa, these functions cease to be performed by the organism as a whole and are distributed more and more to specialized organs, until in the higher animals we find highly complex nutritive, reproductive, motor, and nervous systems.

The same law, of course, is operative also in the development of each individual. The human being begins life with a single cell something like the 125th of an inch in diameter. This cell divides and subdivides, until in the adult body we find 26,500 billion cells, built up into the vast variety of bodily organs. In this development of the individual, phylogenetic history is recapitulated. Each group of organs reveals, with varying

¹ I am under great obligations to the entire psychological faculty of Clark University for help in the preparation of this article. Especial acknowledgments are due to President Hall, who suggested the topic and supplied constant inspiration and guidance in working it out; to Professor E. C. Sanford, who gave valuable advice and assistance in the revision of manuscript; and to Mr. Louis N. Wilson, who helped me to procure books of reference not readily accessible.

degrees of distinctness, the process of differentiation from simple to complex types of organization.

The same law holds, moreover, for the mind as well as for the body. The different elements are more difficult to trace in their beginnings and development than are organic structures, but the general fact of their increase in complexity is clear. From the close relation of the instinct-feelings to the welfare of the organism, it might be inferred *a priori* that the same general law would operate in one case as in the other. Darwin apprehended this truth when he said:¹ "It will be universally admitted that instincts are as important as corporeal structures for the welfare of the species, under its present conditions of life. Under changed conditions of life, it is at least possible that slight modifications of instinct might be profitable for the species; and if it can be shown that instincts do vary ever so little, then I can see no difficulty in natural selection preserving and continually accumulating variations of instinct to any extent that was profitable. It is thus, as I believe, that all the most complex and wonderful instincts have originated."

Did space permit it would be easy to show this growing complexity of the psychic life by abundant citations, but the point is not one that is likely to be contested.

§ 2. THE LAW OF ELIMINATION.

Differentiation is only the positive aspect of development. There is also a negative aspect, illustrated in the correlative process of elimination. As life is brought into more complex relations with environment, it requires new organs to mediate its functions. Meanwhile old organs cease to be serviceable and fall into disuse. When vertebrate animals began to leave the water they were unable to breathe air by means of gills. Accordingly, their change of habitat involved the development of lungs, and the gills fell into disuse. Again, when vertebrate animals took an upright position and commenced to walk upon two legs instead of upon four, various modifications became necessary. The triradiate pelvis would not support the viscera adequately; the keel-shaped thorax would not accommodate itself to an upright position or admit of the freedom of movement in the fore-limbs that was necessary; and the whole complex of muscular structures was out of adjustment. Accordingly, the transition from a horizontal to a vertical position of the body involved an expansion of the pelvis, a flattening of the thorax, and a readjustment of the muscles; and these changes rendered certain organs like the sternal ribs and various muscles functionless for their original purpose. Function-

¹ *Origin of Species* : Vol. I., p. 321.

less organs are also found in psychical development. When animals became terrestrial a vast complex of new instincts had to be formed, and a corresponding complex of instincts that served the ends of aquatic life fell into disuse. Every stage in the advancement of mankind, from a life dependent upon the chase to that dependent upon agriculture and other settled industries, has involved new instincts and types of intelligence, and the disuse of old ones.

The elimination of all such functionless organs, psychical as well as physical, has therefore been as necessary in the economy of Nature as has been the differentiation of new ones. The two processes are everywhere concomitant. But elimination is slowly accomplished. The useless organ yields by degrees, and often persists in the midst of environments that are vastly more complex than those in which it normally functioned. Everywhere in nature rudimentary and aborted organs point to a past inconceivably remote. These it is that establish the law of elimination, inasmuch as they are clearly undergoing regressive change. The nature of such rudimentary organs has been defined by Wiedersheim as follows:¹ "By such organs are meant those which were formerly of greater physiological significance than at present. In the course of generations, in consequence of the adaptation of the body to special conditions of life, they have been, so to speak, put out of the running, subjected to reduction or degeneration, and now persist as mere vestiges." The law of elimination illustrated in such a reduction of structures is thus stated by Darwin: "It appears probable that disuse has been the main agent in rendering organs rudimentary. It would at first lead by slow steps to the more complete reduction of a part, until at last it became rudimentary, as in the case of the eyes of animals inhabiting dark caverns, and of the wings of birds inhabiting oceanic islands, which have seldom been forced by beasts of prey to take flight, and have ultimately lost the power of flying. Again, an organ useful under certain conditions might become injurious under others, as with the wings of beetles living on small and exposed islands; and in this case natural selection will have aided in reducing the organ, until it was rendered harmless and rudimentary."² Such evidence of the action of the law of elimination, to speak first of the physical organs, is found in bewildering abundance when search is made for it, and that not only in plants and animals, but in man himself. In his case embryology and comparative anatomy have accumulated a mass of data as

¹ *Structure of Man*, p. 2.

² *The Descent of Man*, p. 401.

astonishing as they are conclusive. Wiedersheim¹ enumerates more than a hundred structures and groups of structures that are either regressive or shifting in position. Many of the groups, moreover, include a large number of individual organs, as, for example, the muscular groups. Now, if one can imagine each of these structures and groups of structures to be fully developed organs, instead of more or less unobtrusive rudiments, he will have before him a type of what the human body would be had not the economies of nature been so administered as to eliminate the useless.

Psychic rudiments have thus far received comparatively little attention from psychologists. They are, however, as much a logical corollary of the theory of evolution as are the regressive structures in the physical organism. The doctrine of the latter, before the time of von Baer, was largely an inference awaiting proof or disproof. As has already been seen, it is now as well established as any other law of comparative anatomy and embryology. Darwin recognized the existence of the parallel psychical law. Thus, in speaking of regression in relation to moral qualities, he says:² "Some elimination of the worst dispositions is always in progress, even in the most civilized nations. Malefactors are executed or imprisoned for long periods, so that they cannot freely transmit their bad qualities. Melancholic or insane persons are confined or commit suicide. Violent or quarrelsome men often come to a bloody end. . . . Intemperance is so highly destructive that the expectation of life of the intemperate, at the age of thirty, for instance, is only 13.8 years; while for the rural laborers of England at the same age, it is 40.59 years. Profligate women bear few children, and profligate men rarely marry; both suffer from disease. . . . With mankind, some of the worst dispositions, which occasionally without any assignable cause make their appearance in families, may perhaps be reversions to a savage state, from which we are not removed by very many generations." A like recognition of the paleogenetic origin of many psychical attributes that are now discordant factors in civilization would probably be accorded by most comparative psychologists. But the idea of deriving the present psyche from a more primitive one has not found such definite expression in psychological literature as has the correlative idea of organic derivation in the literature of comparative anatomy.³

¹*Structure of Man*. This work may be consulted for abundant confirmation of the law under discussion. See also §§ 4, 5 and 6 of this article.

²*Descent of Man*, p. 153.

³Recently, however, Pres. Hall has made full use of this idea in the analysis of a group of instinct feelings (*cf.*, *A Study of Fears*. *Amer-*

§ 3. MODES OF ELIMINATION.

Granted the general operation of the Law of Elimination the next question is as to the methods by which elimination is accomplished. There are three principles which are deducible from the phenomena of regressive transformation in organic and psychical life:

1. *The process of elimination is slow.* Nature does not abruptly extirpate an organ as soon as the conditions that brought it into being and made it serviceable have passed away. When the fishes of Mammoth Cave found their present habitat in subterranean waters, they undoubtedly had eyes like those of other fishes. These eyes, however, must soon have become functionless. Now, hundreds of generations of such animals have come and gone, each living in total darkness. Yet the work of eliminating the functionless structures of sight is not completed; rudiments of eyes still appear, recalling the far-off ancestors that disported themselves in sun-lit waters. Darwin says in regard to the gradual processes of Nature in this respect:¹ "It may be doubted whether a change of structure so abrupt as the sudden loss of an organ would ever be of service to a species in a state of nature, for the conditions to which all organisms are closely adapted change slowly. Even if an organ did suddenly disappear in some one individual by an arrest of development, inter-crossing with the other individuals of the same species would tend to cause its partial reappearance, so that its final reduction could only be effected by some other means."²

Psychical elimination is also slowly effected. This is shown in the feral instincts and habits of domestic animals, which persist hundreds and it may be thousands of years after they have ceased to be functional in a strictly economical sense. Among men, the same feral psychoses, with their fondness for strange foods and primitive ways of securing them; their uneconomical and dangerous sex proclivities; their multitudes of fears of animals, men, and other objects; their superstitious beliefs about dreams, ghosts, and celestial phenomena; and their sinister passions of anger, jealousy, envy, and oppression, indicate the inertia of the human soul and its resistance to radical processes of change. No one that has studied history and current civilization, or the phenomena of ontogenetic growth as revealed in himself and others, can be ignorant of

ican Journal of Psychology, Vol. VIII [1897], pp. 147-249), and has been followed in it by several of his pupils.

¹ *Plants and Animals under Domestication*. Vol. II, p. 308.

² Cf. a remark on the excessive slowness of organic change, by Weissmann. *The Monist*, Vol. VI, p. 255.

the tremendous truth that Nature is on the side of the best aspirations and the best efforts of the race. But, as Nature has reduced the number of superfluous ribs only by a process extending over hundreds of centuries, so must the forces that make for psychical evolution gradually effect those variations which shall adapt men to the conditions of a more complete existence.

2. *Elimination is effected through the atrophy of structures or qualities.* This is the usual method in organic variations. Disuse normally leads to regressive change in tissues, since the metabolic processes are interfered with by any decrease in the functional activity of organs. Psychical atrophy is illustrated in the disappearance of instincts and habits. All the domestic animals must at one time have been more or less migratory, yet the instinct has now disappeared in most cases. The same may be said of their fear of man. In fact, every young animal in a state of domestication recapitulates the process of taming that its species has undergone at the hands of man, and this recapitulation is a kind of ontogenetic atrophy by which the resurgent instincts are again reduced.

In man, there can be no doubt that, grossly considered, all the instinct-feelings have been modified in the direction of less intensity. The appetite for food is not so voracious among men as it is among animals, and not so voracious among civilized peoples as it is among savages. The same is true of the sex-instinct. Among the lower races the latter is much stronger than it is among the higher races. This is especially true in the case of women. Both on anatomical grounds, and for psychical reasons as well, the female savage is more erotic than her civilized sister, as the investigations of anthropologists have shown. The fear and anger psychoses have also been greatly reduced as a whole, as have the related malevolent instincts. What is true of the race is more especially true of individuals. In many men and women, it must be owned by the most pessimistic that the food and sex instincts are entirely under control. Temperance in the one and continence in the other are realized facts, life being practically emancipated from the bondage to those appetites. In many individuals, also, atrophy of the cruder fears and the more malevolent passions has advanced so far that these qualities are rendered harmless. The fact that such transformations are so nearly completed in some individuals of the race points the course of evolution, for general progress first comes to light through sporadic variations.

3. *Elimination is sometimes effected through transformation of function.* Darwin says:¹ "An organ may become rudimen-

¹*Origin of Species*, Vol. II, p. 257.

tary for its proper purpose and be used for a distinct one. In certain fishes the swim-bladder seems to be rudimentary for its proper function, but has been converted into a nascent breathing organ or lung. Many similar instances could be given." The transformation of function becomes possible through the fact that an organ commonly has not one function but a number of functions to perform, of which functions one is predominant at any given moment, and the rest are subordinate. "Each function is a resultant of several components of which one is the principal or primary function, the other secondary. Diminution of the primary function and increase of a secondary function alters the total function; the secondary gradually becomes the primary, the total function is changed, and the issue of the whole process is the transformation of the organ."¹

There are many illustrations of this principle in organic development. Man's arms illustrate a change in function from locomotion to their present uses. The teeth of various animals, which were once used as a means of defense, have been modified and adapted to purposes of mastication. The human tongue, which originally functioned as an organ of alimentation, is now also an organ of speech. This is perhaps the nearest approach in nature to a transformation from physiological to psychical functions.

On the psychical side, we find illustrations of change in function in the sex-diathesis. The entire group of courting instincts have been progressively modified in the direction of conjugal, parental, and social instincts. In the very lowest animals union of the sexes and the deposition of eggs summed up the phenomena of reproduction. Then came the love of offspring, which has since been transformed through countless differentiations into life-long affection and care, not only for one's own children but also for the children of others. The transformation of a desire for union with the opposite sex into conjugal feeling was more slowly, though not less surely, accomplished. At first, sexual relations were possibly indiscriminate; then they were modified by temporary associations of the sexes; then by polygamous marriages, which made such associations more or less permanent; and finally, by monogamous marriages, whose ideal is expressed in the marriage rituals of Christianity, binding the sexes together in "holy wedlock" as long as life shall last. Illustrations of sex transformations are numerous among the individuals of every civilized community. Boys, who in adolescence recapitulate the sexual instincts of their phylum, find the sex yearnings of mature life satisfied by the chastest of companionships with

¹ Marshall: *Biological Lectures and Addresses*, p. 59.

women, and by such sexual amenities as politeness and deference to every woman they meet. Girls in whom conjugal and maternal instincts are rife during early womanhood become women whose sex yearnings are satisfied by intellectual companionships, or by labors of love among the children of other women,

The transformation of fears is not less remarkable. Among animals, fright, terror, timidity, dread, and distrust are everywhere powerful emotions. In man, these become transformed into caution, respect, bashfulness, awe, and reverence. Similarly rage, hatred, revenge, etc., have more and more yielded to altruistic forms of indignation. While even jealousy and envy may be transformed into a spirit of emulation that is healthy and economical when the ends to be secured are worthy.

§ 4. THE LAW OF PERSISTENCE AND ARRESTED DEVELOPMENT.

The Law of Persistence is the natural antithesis of the Law of Elimination. The process of elimination that normally accompanies development is sometimes retarded or arrested. The struggle for existence is nowhere more rigorous than among the structures of the body and the attributes of the soul. Matter is inert and resists the organizing force that elaborates it into higher and higher forms. It is always seeking lower levels of organization, and, unless the circumstances are favorable, creative energy is overcome and development becomes retrogressive. Psychical evolution is not less difficult. There is an inertia of soul as well as of body. Even under normal conditions the pull downward is only a trifle less strong than the push upward, and this unstable condition is always in danger of being inverted. It would seem that in the world of mind as in the world of matter "there is a tendency for energy to pass from the higher or more readily transformable to the lower or less readily transformable forms." Low potential existence is easy; high potential existence is difficult.

Let us come to closer quarters with the facts.¹ The tendency of life to seek lower levels is shown first in the reappearance of structures and types peculiar to lower developmental stages. This results proximately from the fact that ontogenetic devel-

¹ The same set of facts shows the operation of both the Law of Elimination and that of Persistence; a rudimentary organ is evidence of the process of elimination in that it is rudimentary and of the tendency to persist in that it exists at all. The facts enumerated in the following sections will therefore serve as evidence for the truth of both principles, and make up in part for the meagerness of citations in the previous sections.

opment is recapitulatory. Each individual passes through the stages through which its phylum has passed. If for any reason, therefore, development is arrested at a point corresponding to one of these lower stages, the qualities characterizing the latter will persist. We have here to distinguish between growth and development. *Growth* results from the augmentation of each of the parts of a body, independent of all change in their number, structure, or functions; *development*, on the contrary, consists of differentiation of the organism into a greater number of structures and into greater complexity of structures and functions. The two processes, while normally correlated, may take place more or less independently. Thus, if a tadpole is kept excluded from light and heat, but at the same time is supplied with food, it may *grow* into a gigantic tadpole, but never *develop* into a frog. This is what is meant by "arrest of development;" there has been simply augmentation of the parts of the tadpole's body without any change in their number, structure or functions. In other words, the enlarged tadpole is just as homogeneous as the small one. Thus, arrested development renders persistent the peculiarities of the stage at which it takes place, while the augmentation of these qualities through continued growth throws them into greater and greater prominence.

1. *Organic Arrests.* The structures of the human body that are normally vestigial, and appear only at certain stages in the development of the embryo, sometimes become persistent. (1) The *branchial sacs* found in the embryo, occasionally persist into adult life, penetrating the anterior cervical region and even opening into the pharynx. Fisher¹ found that in sixty-five persons thus affected there were 79 clefts, 51 being unilateral, and 14 bilateral. Twenty cases opened into the pharynx, and 53 did not. There were thirty-four males showing this anomaly and thirty females, and there was evidence of heredity in twenty-one cases. (2) The human embryo during the early part of its development is bisexual, having both the male and female genital ducts. At this stage, it resembles hermaphrodite forms of life. Later, the paired Müllerian ducts develop into the female genital system, and the Wolffian into the male genital system. Sometimes the early embryonic condition persists and grows into a more or less perfectly developed bisexual system. The result is human *hermaphroditism*. (3) At one stage in the development of the Müllerian ducts in the female, they are separated throughout after the manner of didelphous animals. Not infrequently this didelphous condition persists, and

¹ Quoted by Bateson : *Materials for the Study of Variation*, p. 175.

the result is the abnormal forms of uterus, such as *uterus duplex*, *bilocularis*, *subseptus*, *bipartitus*, *bicornis*, etc. (4) At an early stage of embryonic life, there appears a free projecting appendage joined to the caudal vertebræ and resembling a tail. In time, this appendage normally becomes absorbed, and when the child is born no trace of the tail is left except the *vertex coccygeus*. But sometimes this absorption does not take place, and the tail persists into adult life. From the middle third of the present century, thirty well-authenticated cases have been recorded among civilized peoples. Thus Shaeffer mentions four cases of caudal formation, associated with other anomalies. Raband¹ reports the case of a boy who had a tail nearly a foot long. Wiedersheim² cites several cases: one, recorded by Gerlach, of an embryo with a true caudal appendage one-sixth of its length; and one, recorded by Lissner, of a female child that had a tail containing an axial continuation of the vertebral column. Kögel,³ Schultze,⁴ Freund,⁵ and others state that these anomalies are common in Borneo, the Sunda Islands, and various places. (5) During the sixth month of its life, the human foetus is entirely covered with a coat of soft hair called the *lanugo*. Normally, this lanugo marks only a recapitulatory stage in the development of the corneous structures. Through an arrest of development, however, the foetal hair may persist and grow into a permanent hairy covering. Wiedersheim mentions the Ambraser family, Barbara Uslerin, Julia Pastrana, the Russian "dog-man" Jeftichjeff, his son Fedor, and the Burmese Shewé-maong and his family. Of these, Jeftichjeff and Shewé-maong had the whole face thickly covered with delicate soft hair. The Russian's body was less hairy than that of the Burmese, which was entirely covered with hair from four to eight inches long. Flesch⁶ describes a boy 2¾ years old, who was a light blonde in complexion and had a growth of hair upon either cheek. This hair was from 1.5 to 2 cms. long and very light in color. There was also a heavy growth of hair on the breast, shoulders, and back; this was thick, and 2.5 cms. in length. Stricker⁷ describes a girl who lived in Augsburg during the 17th century. This girl was covered with a very fine silky white hair, and had a rather heavy beard of the same color and texture. Morgan⁸ men-

¹ *British Medical Review*, August, 1891.

² *Structure of Man*, p. 29.

³ *Globus*, Vol. XXXI, No. 5.

⁴ *Zeitschrift für Ethnologie*, Vol. IX.

⁵ *Virchow's Archiv*, Vol. CIV, p. 531.

⁶ *Archiv für Anthropologie*, Vol. XIII.

⁷ *Virchow's Archiv*, Vol. LXXI, p. 111.

⁸ *British Medical Review*, July, 1891.

tions a tuft of hair in the middle of a boy's forehead, evidently hereditary, as it could be traced through four generations. This anomaly recalls a similar tuft of hair found on the head of the gorilla. (6) Another example of the persistence of a tegumentary rudiment is probably found in the disease called *ichthyosis*. This disease consists of a thickness of the whole skin in more or less regularly shaped scales. It is not well understood, but is known to be hereditary. It is not unlikely that it represents in a hypertrophied form the *stratum corneum* of the embryonic period, rendered persistent through an arrest of development at the epitrichial stage of the corneous structures. Very similar is the anomaly described by the writer of "Vestiges of the Natural History of Creation,"¹—that of an Englishman who had semi-horny excrescences a half-inch long growing thickly all over his body. This anomaly was hereditary also, being traceable through three generations. (7) It seems probable that the brains of microcephalic idiots and some species of imbeciles represent exaggerations of rudimentary types of structure. Cunningham,² who studied the brains of two microcephalic idiots and compared them point by point with the brains of different species of monkeys, obtained the following results: (a) In general, the peculiarities group themselves according to three types—that of the higher apes, that of the lower apes, and that of quadrupeds. (b) The relation between the weight of the cerebrum and that of the cerebellum is similar to that found among quadrupeds. (c) The arrangement of convolutions in one of the brains is more ape-like than human. (d) A number of sulci and gyri are similar to those of apes. And (e) there is a marked reduction of that part of the hemisphere which lies behind the fissure of Rolando. Mickle gives the following variations in the parieto-occipital fissure, each of which is present in certain ape forms, some microcephales, and some fetuses: (a) An internal limb of parieto-occipital fissure interrupted by a superficial *gyrus cunei*, or other annectant gyri, which has attained the surface. (b) Doubling of the internal limb of the fissure, shortness of it, failure to reach the upper border, slightness of its incision there. (c) Its defective depth and boldness relatively to the calcarine. (d) Spurs running fore and aft from the internal parieto-occipital limb, furrowing and practically expending themselves on præcuneal surfaces, or shallowly touching the upper hemispherical edge. (e) Confluence of the conjoint "stem" of calcarine and parieto-occipital with col-

¹ Anonymous. But a pioneer work in literature of evolution. Published in 1852, at Cincinnati.

² *Journal of Medical Science*, Vol. XLII, p. 541.

lateral fissure. On the side of more minute anatomy, Bevan Lewis¹ has found in the brains of epileptic idiots a type of cells that normally appear in the cortex of the apes. These are the inflated spheroidal cells that are distinguished, not only for their peculiarity of contour and nuclear structure, but also for the paucity of their branches.

2. *Psychical Arrests.* The general type of arrested psychical development is the *idiot*. All classes of idiots illustrate the persistence of qualities found among animals, but usually appearing only in the lowest developmental stages of man. Their intelligence is feeble, they are incapable of attention, and they are extremely imitative. In the microcephalic type they are unable to speak, and are fond of gambolling about on all fours, running up stairs, climbing trees, etc.² Several cases are recorded where they smelled every morsel of food before eating, and one idiot used his mouth in hunting lice from his body. They are usually filthy in their habits, and have no sense of decency. Hunger is little inhibited, and usually leads to gluttony. The sexual instincts are uncontrolled when present. Masturbation is exceedingly common among all idiots of both sexes. Onanism, sodomy, and various other sexual psychopathies of a revolting nature are practiced by some in whom there is strong sexual desire united with an absence of moral perception. Destructive tendencies are common, the lower grades destroying through carelessness, but the higher grades often showing a malicious satisfaction in inflicting damage or injury. An inclination towards homicide, arson, etc., is not uncommon. Fear is often exaggerated, the simplest causes producing great excitement. Anger is manifested without reason, and is paroxysmal in character, leading to the infliction of injuries upon the individual himself, or upon other persons and inanimate objects.³

Arrest of psychical development may be illustrated more in particular by vagrancy, pauperism, theft, gluttony, drunkenness, unchastity and assault.

(a) *Vagrancy* and *pauperism* represent the persistence of the unproductive food-appetites found in animals, children and savages. The vagrant and pauper are social parasites par excellence. Many causes operate to produce such individuals, but incapacity to adapt themselves to social and economical conditions that oblige every man to work for a living is one of the most important. Cast little children adrift in the world and they will be helpless. Place men and women of the lower races

¹ *A Text-book of Mental Diseases*, p. 527.

² Darwin: *Descent of Man*, p. 52.

³ Peterson: *The Psychology of the Idiot* (*Am. Journal of Insanity*), Vol. LIII, 1896-97, pp. 1-25.

in the midst of a civilized community and they will be almost as helpless as the children. Nor will this be altogether due to the disadvantages arising from changed environment; it will be due, in a large measure, to their incapacity for settled modes of life and routine occupation. This has been illustrated in the American Indians, who were brought within the influence of civilization by the incursions of Anglo-Saxon peoples. Few of the Indians have ever learned to work. As soon as the natural means of subsistence were exhausted they depended upon the government for support. Except as the wards of the white people who have appropriated their domains they could not now exist in many sections of the United States. A handful of Sioux Indians would starve to death without government supplies upon a reservation that would support in affluence a population of Anglo-Saxons ten times as numerous. A similar illustration is afforded by the Negroes. The native Africans are generally children of Nature, making very little effort to improve upon her methods of support. When they were imported to the United States and placed under white taskmasters they were obliged to work somewhat after the manner of the civilization surrounding them. But after they became their own masters and took their places as self-supporting members of a free society, the race instinct of carelessness and improvidence asserted itself. Many of the best men and women among them have indeed proved their fitness to survive by adjusting themselves to the conditions of free competition. But the great majority of them have not been able to do so, and will not be able to do so for centuries. It is not accidental that so many negroes like to sun themselves in the streets of southern towns and cities, or that throughout the country everywhere they so often content themselves with some chance means of subsistence, such as cleaning out ash-pits, laying carpets, blacking boots, running elevators, etc. While few negroes become vagrants or paupers in the strict sense of such terms, many of the race are satisfied to live in a manner that insures immunity from pauperism and vagrancy rather through an absence of wants than through an ability to supply them.

The general unadaptiveness of such primitive peoples to the economical conditions of civilization is reproduced in some men and women of the highest races. Their development has been arrested at a point corresponding to the improvident stage of appetite. In every civilized community there may be found those incapable of supporting themselves by regular employment. Such are the tramps and strolling vagabonds of every description, and such are most of the professional beggars and many of the pauper class. The statistics regarding such elements of society are extremely incomplete. Thousands of them

manage to keep out of the hands of the law through some makeshift of wit. But we know they are everywhere. According to the Poor Law statistics of Great Britain for 1880, there were at that time in England and Wales 5,914 vagrants, and 808,030 paupers. In France, among the prisoners sentenced in 1882, 23 per cent. of the males and 20.5 per cent. of the females were committed for vagrancy and mendicity. In Switzerland, during the years 1870-74, 4.6 per cent. of the delinquents were vagrants. According to the United States census for 1890, there were at that time in public institutions of this country 2,843 adult vagrants, 1,336 juvenile vagrants, and 73,045 paupers, or 1,166 to every million of the population. While it would be incorrect to say that all these individuals are incapables from the standpoint of modern civilization, it is doubtless true that a large per cent. of them represent the type of arrested development here considered. It is the conclusion of M. Mounod, who investigated a large number of vagrants, that not more than one in forty would accept work if he could get it. This estimate would probably apply to the ubiquitous tramp of the United States.

Since all children pass through this stage of development, bad surroundings or disease often cause an arrest of development in those whom a bad heredity has not incapacitated already. From one or the other of these causes, boys and youth in comparatively large numbers go forth from every city and large town to swell the ranks of the parasitic classes. We find them in the truant schools, where they are sent because they will not, or cannot, adapt themselves to the conditions accepted by normal children. Later, the more pronounced cases of truancy may be found in the juvenile reformatories, where they have been sent for vagrancy or some other offense reducible to a general incapacity to discharge the duties imposed upon them by parents or society. Thus, L., aged 12, was a stubborn, intractable boy who did not like to do any kind of work. He would run away from home and be lost sight of for several days or weeks. At last, his parents invoked the aid of the authorities and he was placed in custody for a time. As soon as he was released, however, he ran away from home and was gone for a year. Then he was returned by a benevolent society which had discovered him in a New York hospital, and was again given a trial at home. But he ran away once more, was captured by the police, and sent to a reform school. H., a boy of 14, was the son of pauper parents, was himself in an almshouse for several years, and was finally given to a farmer to bring up. He was a born vagrant, however, could not be brought to a settled occupation, and at last became so incorrigible that he was sent to a reformatory. C., a boy of 16, was

vagrant in his disposition from childhood. He ran away to sea several times and gave his parents so much trouble that they complained against him, and he was committed to a reform school. After a term of probation there he was placed upon a farm, but immediately ran away, made his way to Europe and was gone a year. Then he returned and became a vagrant, but was arrested and returned to the reform school. N., a girl aged 16, was of pauper stock represented in the Pembroke (Mass.) almshouse for the last sixty years. Was herself placed in an almshouse at 13, and has since been in state institutions. Was utterly incapable of consecutive work and was indolent and improvident. P., a girl of 16, was born of improvident parents who could not support their own children. Was placed in a charitable institution, but later found a home in a private family. Became vagrant and wayward, however; had an illegitimate child, and was finally sent to a reformatory.

With all these cases, the primary difficulty was an inability or unwillingness to adapt themselves to the restraints of home and society, and to resist the impulses towards an irresponsible wandering about and loafing.

(b) *Theft* represents the persistence of the predatory instinct. The thief has first of all a defective moral sense, but more particularly a defective sense of the rights that inhere in property. Concomitant with these defects, is a disposition to idleness, vanity, and general self-indulgence. The qualities constituting the diathesis of theft are therefore very primitive. Some of them are found in animals, others are especially characteristic of savage and semi-civilized peoples, while most of them are recapitulated in the life of very young children. They are all characteristic of stages of development wherein rights of property have not come to be recognized, and wherein the inhibitory influences of morality and intellectual prevision have not yet become strong enough to check the impulses towards self-gratification.

Animals have no sense of property. They plunder from one another indiscriminately. It is only in such higher animals as the dog that we begin to see a certain respect for property rights, so far as they pertain to the master. Savages have a sense of property only a little more fully developed. The rights of ownership are but slightly regarded. They appropriate what they want, and protect themselves from one another in a manner analogous to that of animals. The ancient Aztecs of Peru and Mexico preserved their property from pillage by collecting it in large huts, which they closely guarded. In Egypt, the government granted licenses to robbers, the only recourse of the people plundered being to purchase back their property. Even after a certain family and

tribal sense of property had been developed, the disposition to steal from strangers had full sway. The Spartans allowed theft and punished a captured thief, not for his offense, but because he was not adroit enough to keep from being caught. The early Germans taught their youth to plunder from neighboring tribes. According to Thucydides, the Greeks and all the barbarians of the islands and sea coasts practiced piracy, for glory as well as for booty. In eastern Africa, those who are expert in pillaging from neighboring villages enjoy general esteem. The Esquimaux are honest in dealing with one another, but never with strangers.¹ As is well known, children have no sense of property at first. They take one another's playthings and sweetmeats, and there is nothing safe from their ravages, from pantry to orchard. This disposition to appropriate other people's property yields but slowly as childhood advances. Little girls will pick up toys and bits of finery at neighboring houses, while boys will extend their depredations to the various fruit and game preserves of the entire community.

Now, stop the development of the child at this stage when he is living over the instincts and habits of his animal and sub-human ancestors, and you will have a type of the most numerous class of moral delinquents of which the law takes cognizance. The property sense, which in civilized communities is so indispensable, has been one of the most difficult to develop; and the correlated instincts of idleness and self-indulgence are constantly reinforcing the impulse to steal. In Italy, from 1880 to 1884, there were yearly 221 trials for theft to every 100,000 of the population; in France, from 1879 to 1883, there were 121; in Belgium, from 1876 to 1880, there were 143; in Germany, from 1882 to 1883, there were 262; in England, from 1880 to 1884, there were 289; in Ireland, from 1880 to 1884, there were 101; in Hungary, from 1876 to 1880, there were 82; in Spain, from 1883 to 1884, there were 74.² During the year 1882, 66 per cent. of the commitments to prison in France were for theft, in the case of male delinquents, while in the case of female delinquents, 52 per cent. were for theft. In Switzerland, from the year 1870 to the year 1874, over 70 per cent. of the commitments were for theft.³ According to the United States census for 1890, 44 per cent. of the inmates of penal institutions in this country were confined for theft of some kind.

The following illustrations of the forms this kind of arrested development may take are drawn from a typical community:

¹ Lombroso: *L'Homme Criminel*, pp. 65-68.

² Morrison: *Crime and its Causes*, p. 129.

³ Ferri: *Criminal Sociology*, p. 33.

D., a boy of 15, was idle and vagabondish in disposition. His parents could not keep him in school or at work of any kind. He acquired the habits of smoking cigarettes, drinking, and going to the theater. His parents would allow him no money for such indulgences, and he took to stealing. At first he "sneaked" cigarettes, bottles of beer, etc., from the stores, then he stole money from cash drawers, and finally he stole a horse, sold it in a neighboring town, and squandered the money in drinking and going to the theater. For this he was committed to a reformatory. M. and J., aged respectively, 14 and 12, formed the habits of running the streets and smoking cigarettes. Their parents tried to correct them, and refused them spending money. They began to steal small sums from their parents, then from the neighbors and from cash drawers in stores; then organized a band of twelve boys and systematically looted tobacco stores for a year, dividing the booty and pledging one another to secrecy. At last they were detected in the act of burglarizing a store, and were sent to a reformatory. T., a boy of 18, well connected and holding prominent social and business positions, began to lead a fast life. His expenses for clothing, theatricals and card parties exceeded his income, and he began to forge checks and otherwise obtain money under false pretences. He squandered the funds of a Sunday school class of which he was the treasurer, signed his teacher's name to a check, operated more and more extensively in false signatures until he was guilty to the extent of several hundred dollars. Two sisters, aged 17 and 12 respectively, were fond of finery, and began to steal articles of jewelry, ribbons, etc., from friends. Then they took to shop-lifting, and operated in several stores for some months before they were detected. When arrested they had secreted in different places dress-patterns, pieces of silk, gloves, capes, jackets, table linen, thread, shoes, hats, diamond rings, etc. L., a girl of 18, well connected, but too fond of dress for her means, entered a flat by means of false keys she had secured, and stole a gold watch, a pearl ring, two pairs of gold earrings, two plain gold rings, and \$75 in cash. With the money she purchased a silk sacque, a silk skirt and a pair of shoes, and then arrayed herself in all her stolen finery and started forth for a good time. These cases of theft, like all other forms of crime, are much too complex to explain upon any single hypothesis. But that defective development of the moral sense, and particularly of the sense of property rights, as well as a lack of the inhibitory impulses normally present in individuals at such periods of life, are central causes, cannot be doubted.

(c) *Gluttony* and *drunkenness* represent the persistence of the indiscriminating food appetite found in animals, savages and young children. Animals eat to repletion, and are often greedy to

a gluttonous extent. The ravenous appetites of certain of the Carnivora, and the omnivorous, perfectly insatiable appetites of the pigs are illustrative. Savages are enormous eaters, as is shown by the great development of their alimentary systems as well as by the amount of food they can consume. Their teeth and the bones and muscles of their jaws are larger and stronger than is the case among civilized peoples. Their stomachs are large and protuberant. The Kamschadales have a hanging belly. The Bushmen, according to Barrow, have uncommonly protuberant stomachs. Schweinfurth describes the Akkas as having "large, bloated bellies, and short, bandy legs." The children of savages are peculiarly developed in this respect. Those of the Veddahs and African Arabs have protuberant, pendant bellies. Galton says of the Damara children that "all have dreadfully swelled stomachs." The quantity of food eaten also bears a strict relation to the generous alimentary provisions for it. "Wrangle says each of the Yakuts ate in a day six times as many fish as he could eat." "Cochrane describes a five-year-old child of this race as devouring three candles, several pounds of sour frozen butter, and a large piece of yellow soap; and adds: 'I have repeatedly seen a Yakut or a Tongouse devour forty pounds of meat in a day.'" "Of the Comanches, Schoolcraft says: 'After long abstinence they eat voraciously and without apparent inconvenience.'" "Thompson says of the Bushmen that they have 'powers of stomach similar to the beasts of prey, both in voracity and in supporting hunger.'" ¹ The children of civilized peoples have appetites very similar to those described. They eat to repletion and indiscriminately, and it is well known that this voracity of appetite accounts for many of the diseases peculiar to childhood.

Among adult men and women of civilized communities, the tendency to gormandize is not uncommon. "When we know how little food is really required to sustain life, we may the more readily surmise how very much more food is taken by most persons than can ever be applied usefully towards sustainment. We have no compunction in asserting that while fasting enthusiasts are subjecting themselves to considerable danger from abstinence, hundreds of thousands of persons are subjecting themselves to a slower but equal danger from excesses of foods and drinks. These keep up their experiment, and, with every vessel in their bodies strained to repletion and seriously overtaxed, continue to replete and strain the more."² Occasionally, individuals so distinguish themselves for the amount of food devoured that their cases are recorded in his-

¹ Spencer: *Principles of Sociology*, Vol. I, p. 45.

² Richardson, in *Tuke's Dict. of Psy. Med.*, p. 773.

tory. A Tartar courier is described by Vambéry as eating at one time a large skinful of raisins and a middle-sized pig, leaving nothing but the bristles and a few of the larger bones. At another time, within fifty hours, he ate a goat and two kids, together with a bag of dried figs and a quantity of koumiss. An Englishman, living in Yorkshire, exhibited himself as a professional glutton. He could eat a dozen pigeons, feathers, bones and all, and swallow trout and other fish alive. On one occasion he won a wager by devouring within two hours all the edibles, including half a cheese and a large quantity of pickles, on a table that had been set for eight persons.¹ As we know from history, some of the Roman emperors during the decadence of the empire were addicted to indescribable excesses of appetite. The feasts of Appricius lasted for a whole day, and sometimes for two days. Guests were restricted to recesses of ten minutes, and were obliged to eat something of everything placed before them and to drink a prescribed amount of wine. Vitellius ate three brace of peacocks at one sitting, prolonged his banquets hour after hour without intermission, and spent the revenues of an entire province upon one such debauch. Cicero describes the scene after a Roman banquet as resembling a battlefield. In the reigns of Caligula, Domitian, and Heliogabalus, such occasions were the financial ruin of the wealthiest patricians, vast fortunes being squandered in providing delicacies from all parts of the empire. The gormandizing instincts of these Roman epicures have their modern analogues in aristocratic circles in Europe and America. The luxurious catering establishments, the elaborate *menus* served at fashionable clubs, and the ostentatious expenditure of tens of thousands of dollars upon the dinners that grace various social functions, are facts so patent in metropolitan communities as to need no more than mention. Indeed, it may be laid down as a law that wherever great wealth and luxury exist side by side with inferior intelligence the first sign of decadence appears in the resurgence of the primitive instinct of sense-repletion, as illustrated in some form of gluttony.

Drunkenness is closely related to gluttony, and almost invariably accompanies it. This is as true historically as it is from the standpoint of current social customs. Both are the derivatives of a very primitive and voracious appetite. Wherever savages have been able to invent intoxicating drinks, they have used them to excess; and wherever they have secured the more intoxicating liquors of civilization, they have drunk themselves to extinction. The savage is the drunkard par excellence, and the appetite among civilized peoples that craves

¹ Oswald: *Dietetic Curiosities*. Popular Sci. Mo. Vol. XIV, p. 730.

intoxicants must be regarded as primarily a gross animal appetite, rendered persistent through an arrest of psychical development and given direction by the environments of civilization. This is not to deny that drunkenness is immediately induced by other causes, as in the case of mental affections, which antedate the drink habit. But the general character of the appetite for drink, combined with the physical and psychical attributes of those who become the typical drunkards of civilized communities, indicate a diathesis springing from the same tap root as gluttony. And even in the case of those who take to drink through antecedent disease, the question as to why their disease should take the form of drunkenness remains to be answered. We have got beyond the time when such a phenomenon can be explained as mere chance. And to say that, under such circumstances as those attending dipsomania, a man or woman takes to drink because of a craving for stimulants, explains nothing. It is certainly more rational to suppose that in drunkenness, as in most of the other vices that appear to come into prominence as concomitants of mental disease, we have to do with a law of evolution. Why not regard such vices as an expression of the fundamental diathesis of the individual, freed from the inhibitory restraints of higher levels of consciousness that are now in process of dissolution?

(d) While the causes that produce *unchastity* are complex, it is not improbable that here, too, we have to take into account arrest of psychical development. Organic life fundamentally unfolds itself in men as it does in animals. The sexual system is elaborated with the same care, and makes its demands in accordance with the same general laws in one case as in the other. It is only as intelligence and morality react upon the instincts which express an organic need, that men come to follow sexual laws at all different from those followed by animals. In other words, sex-differentiations in men are essentially psychical. Now, if for any reason psychical differentiation does not take place, and if, as is usually the case, organic sex-development proceeds, it necessarily results that a sexual animal is produced without the psychical concomitants of a sexual man. Upon such an hypothesis we would expect to find in civilized life every form of sexual manifestation, from the unrestrained appetite of animals and the scarcely less unrestrained lust of savages up to the subdued and thoroughly controlled sexuality of the highest types of men and women. And this is what we do find. In proportion to the level of psychical development attained by each individual is the primitive sex-diathesis subordinated. And in proportion as development has been interfered with does the primitive sex-diathesis assert itself. This does not imply that there is any less perfectly developed sexual

system or any less organic need in the highest creature than in the lowest one. It implies merely that sexuality in civilized communities is now conditioned by chaste personal conduct and by obedience to social customs and laws.

Of the arrests in sexual development among civilized people the one most suggestive of animal sexuality is masturbation. This is essentially a phenomenon of childhood and early adolescence, and is an expression of an awakening sex feeling unduly stimulated, perhaps, by environments, and seeking its gratification by any means whatsoever. The young of many animals show an altogether similar disposition. Young dogs, pigs, cattle and horses evince their first sex yearnings by sporting with one another, regardless of sex. Many of the males, at least, masturbate constantly. This phenomenon, as seen in children, is far more common than is generally acknowledged. The taboo that is placed upon such subjects by parents and educators has hitherto relegated them to the private speculations and discussions of children themselves and to the purveyors of quack literature. As a result there is probably no subject upon which there is greater ignorance. An illustration is found in the popular opinion that children will not acquire this habit except by example, and by the opinion prevalent among at least some medical men that the habit is usually the sign of disease. The obvious conclusion from such opinions would be that if a child is healthy and has no evil associates it will run no risk of self-pollution. Both of these opinions have truth in them, and the precautions they suggest are salutary. But it is certain that children may form such habits, exactly as the young dogs and pigs do, in trying to gratify instincts that are deeper than imitation or any conditions produced by disease.¹

Cases of masturbation among boys and girls of 5, 6, 7 and 8 years are relatively common. To explain the beginnings of sex gratification in such young children upon the hypothesis of arrested development is of course impossible and unnecessary. They have not yet reached the age when we can speak of arrested sexual development at all. They are probably manifesting instincts, somewhat precociously, it may be, but nevertheless innocently, just as young animals manifest them. But, suppose that this naïve animal tendency persists into mature years, either through the ignorance of the child or its parents, or through an arrest of psychical development induced by the habit itself or by some other means, and we have just the condition met with in the perverse sexuality of thousands of adolescents, as well as in mature men and women. It is to such

¹ See report on masturbation among infants, by Dr. Townsend, in *Archives of Pediatrics*, Nov., 1896.

that the term "arrested development" may be legitimately applied.

Most reformatories, prisons, and insane asylums afford illustrations of this primitive animal sexuality, while society everywhere contains individuals who sustain normal relations to it, yet whose lives are dominated by a passion that daily jeopardizes their own well-being and often that of individuals about them. A few cases will suffice to illustrate: C., a man aged 36, born of well-to-do and healthy parents; a strong, active, but sexually precocious child; began to masturbate before he was 8 years old and continued the habit regularly until he was 17, when he learned its consequences and tried to stop it; tore himself away from his old associations, educated himself and became a successful teacher, meanwhile struggling against his appetite; made a silent but heroic fight for ten years; then gave up in despair, and is now half imbecile in character, alternating between moods of stupor and suicidal mania. S., aged 26 at the time of his death; born of well-to-do and respectable parents; learned to masturbate and to be incontinent with little girls while he was yet in graded schools; had precocious and strong sexual appetite, which within a few years completely mastered him; tried frequently to reform himself; gave himself a college and medical education, meanwhile adding associations with abandoned women to his solitary vice; located in a large city, and kept mistresses one after another; gave up the struggle with his sexual appetite at 26, and committed suicide. A., aged 29; born of wealthy and cultivated parents; had good educational and social advantages; was a strong, healthy boy, but became impure in the early teens and from that time on was more and more addicted to incontinence, both with girls and in solitary vice; began to frequent houses of prostitution at 22 and practiced frightful excesses; at 25 kept an extremely depraved mistress who acquired great influence over him and from whom he submitted to oral manipulation; spent all his income upon this mistress and forged checks for large sums of money with which to gratify her vanity; kept up such practices until he was brought to justice. G., aged 25 at the time of her death, became unchaste when 9 or 10 years old, and thereafter was more or less constantly lewd among her schoolmates; at 17 began to prostitute herself under cover of pretended visits to neighboring cities, and dressed flashily; at 22 married an indolent but fairly respectable man in her native town, and tried to restore herself to a social position, meanwhile, however, keeping up clandestine relations with different men; at 25, died from syphilis. M., a woman of 23, had the reputation of masturbating and teaching the habit to other girls at the age of 8 years; became notoriously

unchaste with boys at 12, and grew to be the terror of the neighborhood; bore an illegitimate child at 16, and thereafter alternated between a life of prostitution in the cities and indolent enjoyment of her income in the country home of her relatives.

With this class of sexual offenders belong many of the common prostitutes. From answers received from competent authorities in the various great metropolitan centers, Dr. Wood Hutchinson concludes that 5.6 per cent. of all the prostitutes are drawn into their course of life by sexual appetite alone, most of the others being the victims of vanity and idleness. This per cent. is small, but it indicates the presence in society of a class of women who depart radically from the civilized type. With this class also belong those youth and men, half imbecile in character, who hang about the parks and alleys of the cities, gratifying a prurient curiosity with little girls and sometimes insulting women with indecent remarks or with exposure of person.

Not so close to the animal type of sexuality, but rather illustrating the persistence of savage instincts, are the rapists. Among savage peoples, force is often employed in sexual union. Marriage by capture is common in some races, and in most races women cannot leave the neighborhood of their own huts without due precautions. Among some of the American Indians a woman found outside of the camp belongs to any man that can capture her. It is not strange, therefore, that the crime of rape should be so common among our negro and Indian populations. According to the United States census for 1890, there were confined in the various prisons 814 white rapists, 569 negro rapists, and 8 Indian rapists. Upon the basis of 1,000,000 inhabitants of each of these divisions of the population, the ratios are 14.2, 23.4, and 24.8, respectively. The total number of persons, including juvenile offenders, that were in prison for rape in 1890 was 1,408. Add to these 2,809 persons confined at the same time for incest, crimes against nature, fornication, etc., and we have a total of 4,217 persons in the United States that were guilty of grave sexual offenses. This is 4.3 per cent. of all the delinquents in confinement, and represents sixty-seven individuals to every million of the population. The fact that in a nation of 62,623,250 people 4,217 persons are in confinement for acts of savage and bestial sexuality that have been detected, proves the persistence of a very primitive sex diathesis in the midst of civilization.

(e) In *assault* upon the person there is involved a purpose to injure or kill a fellow-creature. This may proceed from the instinct of self-defense or from malevolent passions excited by

other causes. In any case, however, the man who lays violent hands upon another man aims, unconsciously or consciously, at the destruction of life. Such an act reveals the animal and sub-human instincts that were once economical, but are now self-destructive as well as anti-social. "Whoso sheddeth man's blood, by man shall his blood be shed," expresses the law that has governed society's treatment of the assaulter from the time when the family avenged the injury or death of a member to the present, when the power of avenging rests with the State. So long and so carefully has society guarded the life of its members that the elimination of the instinct to kill has perhaps proceeded farther than that of any other instinct. Even children respect life, normally, and except in their tendencies to be cruel in teasing or domineering over playmates, there is nothing to indicate a passion strong enough to seek gratification in murder. Yet individuals exist in every community that are probably capable of shooting, stabbing or poisoning a fellow-being. In most cases this disposition comes to light only when rage, hate, or revenge dominate the mind, and, under such circumstances, the question may well be raised whether most persons do not glimpse the possibility of murder. In some cases, however, the disposition to kill is but little, if at all, concealed, and manifests itself in every degree of insanity, from fighting with fists and clubs to deliberate destruction of life.

The willingness to kill a man or to commit any assault upon him that involves the possibility of his death, is a disposition so alien to the altruistic spirit of civilization that it can be explained only on the hypothesis of an imperfectly developed human being. From some cause the psychical qualities of the animal or sub-human ancestors have persisted just as they have persisted in the idiot. This is illustrated in such well-known cases as Jesse Pomeroy and the murderer Holmes, where the most inhuman crimes were committed merely incidentally to the pursuit of the ends of self-realization. It is just as in the case of the tiger that drags to the earth an antelope, gorges itself upon its flesh, and then passes on indifferently to its lair; or in the case of the savage that shoots another savage through the heart, possesses himself of his hunting equipments, and proceeds in further quest of game or plunder. It is illustrated in the case of such burglars as Kelly, who went into a bank with a bag to carry away the booty, and with a slung-shot and razor to kill any one who might get in his way. When the aged cashier made the resistance that was expected, Kelly merely did what he was prepared to do, felled him to the floor with the slung-shot and then cut his throat. It is illustrated in such criminals from passion as Madame DuTilly, who threw vitriol in the face of a rival; of Madame Darn, who stabbed her

husband to escape his brutality; and of Marie Barberi, who killed her lover because he had seduced her and then treated her with scorn. Such and similar cases swell the total of homicides to relatively vast proportions in the most highly civilized countries. According to the official census for 1890 there were confined in the prisons of the United States 7,351 persons convicted of homicide, or 89 to every 1,000,000 of the population. The ratio of the different elements of the population guilty of this kind of crime are quite as significant as in the case of rape, affording an incidental support to the hypothesis advanced in this study. Thus, the ratio per million of white persons was 77.2; of negroes, 112.8; of Chinese, 230.9; and of Indians, 285.7.

§ 5. HYPERTROPHY AND DISEASE DUE TO ARREST.

The persistence of regressive structures and qualities is sometimes accompanied by hypertrophy and disease. The *vermiform appendix*, which is usually about $8\frac{1}{2}$ cms. in length may grow to a length of 20 to 23 cms. It is subject to pathological changes and is the seat of the fatal disease known as "appendicitis." The *thyroid gland* is normally a regressive organ. In the new-born infant its proportion to the weight of the body is as 1 : 240 or 400; at the end of the first three weeks, it is as 1 : 1160; and in the adult, it becomes as 1 : 1800. It is sometimes much enlarged, this tendency appearing to increase under certain pathological conditions. Thus, in monstrosities, it is frequently found to be enlarged, according to the descriptions given by Otto.¹ It is also associated with cretinism. In advanced life it is liable to become indurated, and frequently contains earthy deposits. Its vesicles also attain a very large size. Its most characteristic disease, however, is goitre, when the neck may not only become greatly deformed, but when also the goitrous growth may become so great as to hang down half the length of the body. The persistence of the *cervical ribs* is frequently accompanied by aneurism of the subclavian, and the obliteration of the arteries supplying the upper limbs. In some cases there are neuralgic pains in the forearms and fingers and other troublesome symptoms, necessitating the removal of the abnormal ribs. The persistence of the didelphous form of the uterus is sometimes of such an exaggerated type that there are two distinct organs, and the woman becomes not only subject to such disorders as may arise from a condition so anomalous, but also unfitted for her functions as a woman. A case is described by Ameiss² in which a complete septum half a centimeter in thickness extended throughout the vagina;

¹ *Monstrorum Sexcentorum Descriptio Anatomica.*

² *American Journal of Obstetrics*, Vol. III (1896).

while the uteri were entirely separated, the left one being 5 cms. deep and retroverting towards the left, and the right one being 4 cms. deep and retroverting towards the right.

These exaggerated types of rudimentary structures shade off into the anomalous organisms called "monsters." Probably most of the latter illustrate in some detail the persistence of conditions peculiar to lower developmental stages. Monsters are now considered to be due to arrested development, so that their connection with rudimentary organs and the general law of regression becomes evident. Thus Fisher¹ says: "It has been observed by eminent embryologists that the transient forms of the human embryo, in its several stages of evolution, bear a striking resemblance to the persistent types of the lower orders of animals; hence, the human malformations which result from arrested development often acquire the appearance of brutes, while those occurring in animals, for the most part, have the forms of beings still lower in the scale." The general resemblance of human monsters to lower animals was observed long before science came into existence, and all kinds of superstitious beliefs were entertained concerning it. Thus, it was thought that such monsters were the products of unions between women and brutes or between women and devils. The belief still exists that they are the result of "impressions" received by the mother during pregnancy. Such resemblances are certainly met with, as any one must own who has examined the specimens in a well-equipped museum of pathological anatomy. Medical literature records occasional instances in which these resemblances occur. Thus, Lambeth, in the *Weekly Medical Review*, of St. Louis, describes the case of a male child "whose every feature resembled that of a much excited but harmless cow." Hord, in the *Chicago Medical Journal and Examiner*,² describes a case of monstrosity in the form of "a child with a dog's head." Hamilton, in the *North-west Medical and Surgical Journal*,³ gives an account of a "monster with a head resembling a dog's." Gregory, in the *Philosophical Transactions* (London),⁴ tells of a monstrous human foetus "resembling a hooded monkey."

While fancy has played its part in the detection of brute-resemblances, there is no doubt a residuum of truth in the belief that these resemblances are real. If every human embryo does indeed recapitulate the stages of phylogenetic development, and if monsters are due to an arrest in embryonic

¹ *Reference Handbook of the Medical Sciences*, Vol. VII, pp. 1-28.

² Vol. XLVIII, p. 246.

³ Vol. V, p. 455.

⁴ Vol. VIII, p. 314 and Vol. IX, p. 316.

development, it is entirely reasonable that certain brute resemblances should now and then come to light so as to attract even general notice. When the anatomy of such monsters is examined more in detail, it is found that the superficial resemblance is but an expression of structural conditions actually present. About the beginning of the second month of foetal life, four papillary prominences or embryonic buds appear. These are the beginnings of the arms and legs. Now if the development of the limbs is arrested at this time, various forms of *Amelia* occur that recall lower stages of development. The arms and legs may be short and set at such an angle as to resemble closely the flippers of a seal. The toes and fingers may be webbed like those of various animals. The limbs may appear to develop after the Simian type, the arms being relatively longer and the legs and feet showing an exaggeration of the usual structural resemblances to those of apes. Previous to the end of the third week the head of the embryo is not discernible, being undifferentiated from the body. After this period, during the fourth week, it develops so rapidly as to be equal in bulk to the trunk. *Acephaly* would therefore occur if an arrest of development took place during this period; while every gradation of incomplete cephalic development may result from subsequent arrests. Here is suggested the rationale of all those brainless and half-brainless monsters, from the acephalous type, that is not viable, to the microcephalic idiot that lives and becomes a burden upon society. It is not unreasonable to suppose that all of them represent brute stages of development, and that their strange resemblances to animals is not accidental but inevitable, as an expression of law. The human face, like the head, passes through a series of developmental stages, arrest at any one of which may perpetuate brute elements of physiognomy. During the sixth week, the anterior portion of the pharynx presents a large opening bounded by the facial arches. This opening is afterwards partially closed as the different parts of the face are formed. Arrest of development produces the facial fissures, such as single and double hare-lip, cleft palate, etc. The jaws, mouth, and especially the nose in monsters frequently perpetuate the animal types. All of the structures of the reproductive system in monsters may take on forms suggestive of those found in animals as permanent organs. Thus double uterus and vagina, hermaphroditism, hypertrophied external genitals, and other anomalies are frequently met with.

Whatever one may think of these monstrous organisms that appear here and there in human life, he is bound to suppose that they are produced in accordance with creative law. Goethe has said that it is in her monstrosities that Nature reveals her

laws. We must regard them as illustrations of the extreme types of organic retrogression. The forces of life are so far spent that elaboration cannot longer proceed normally, and all the heritage of organic debris becomes persistent and diseased through the failure of creative energy to eliminate it. In other words, the hypothetical condition described by Weissmann¹ in his statement of the rationale of rudimentary organs has been realized: "If Nature were not able to effect the disappearance of superfluous organs the transformation of species would have been well-nigh impossible, for the existing parts which had become superfluous would have been in the way of other active parts, and would have hindered their development. Indeed, had all parts which the ancestors possessed been necessarily retained, an abnormal animal would at last have been produced—a monster no longer capable of living."

The law that thus reveals itself in pathological anatomy has its application also in the field of morbid psychology. The animal and sub-human qualities of the human soul that we have found to be persistent under conditions of arrested development, are liable to perversions of every kind. There are exaggerated or diseased appetites and passions that produce monsters of gluttony, lust, cruelty, hatred, and egoism in general. Such are best illustrated in insanity. The belief in a type of insanity that is related essentially to the moral nature has been very generally held. Pritchard, Georget, Pinel, and Esquirol believed that there is a moral derangement without appreciable intellectual error or delusion. Esquirol says; "There are madmen in whom it is difficult to discover a trace of hallucination, but there are *none* in whom the passions and moral affections are not disordered, perverted, or destroyed." In forty years' experience in the Salpêtrière and Charenton, and in his private practice, Esquirol states that he met no exception to this rule. Pritchard defined "moral insanity" as "a madness consisting in a morbid perversion of the natural feelings, affections, inclinations, temper, habits, moral dispositions and natural impulses, without any remarkable disorder or defect of the intellect, or knowing and reasoning faculties, and particularly without any insane delusions or hallucinations." Carpenter says: "Moral insanity may, and frequently does, exist without any disorder of the intellectual powers, or any delusion whatever." Clouston says:² "There are many cases where the moral defects are the disease, the intellectual defects, if present, being so slight that they would not

¹Quoted by Wiedersheim: *Structure of Man*, p. 212.

²Mental Diseases, p. 350.

have constituted insanity or have interfered with the patient's work or position in the world."

How, then, may moral insanity be explained? If it occurs in those individuals who have shown a progressive evolution of immorality, it cannot but indicate the persistence of rudimentary qualities exaggerated into criminal and then into insane proportions by arrest of development and by the pathological conditions such an arrest of development might induce. The following case cited by Clouston will illustrate:—A boy, F. I. "No one who knew him ever believed a word he said. He stole, he had small affective power, and he never seemed to see why anybody should be offended at acts of immorality or dishonor, though carefully and religiously brought up. In after life, he turned out a selfish and negatively immoral man. He never paid any debt that he could help, and he borrowed from every one he could. He treated his relations badly. He on several occasions did public acts that might have brought him under the cognizance of the criminal law." Clouston further says: "Such cases are the bane and disgrace of their relations. Nothing can be made of most of them morally, any more than a genotous idiot can be converted into an active minded man. Wrong is right to them; they prefer lies to truth, immorality to morality." On the other hand, when moral insanity has not been preceded by immorality, so far as is known, but rather seems to have induced the latter, the explanation may be difficult. Doubtless, some such cases are the results of morbid processes quite remote from the vices and crimes they occasion. Yet, even here, why do these vices and crimes come to the front? Why should not an insane person become transformed into a pure and exalted type of manhood and womanhood, rather than into a filthy, licentious or murderous type, as is so often the case? Why have such creatures won, and doubtless deserved the reputaion of being *madmen*? It must surely be that the worst elements of human nature are always ready to assert themselves the moment reason is dethroned, or else a man's becoming insane might once in a while improve his character. Must not the vices and crimes of the insane mind spring from the same instincts as do vices and crimes generally? Must we not suppose that in such cases the fundamental qualities of the animal psyche come to the fore because they are the oldest and are mediated by lower levels of consciousness? If insanity is to be regarded as psychical retrogression, should we not expect that the more radical the process of disintegration in consciousness, the more active would be those elements of mind that minister to organic needs? Hence, the instincts that have to do with food, sex, and

self-preservation generally, would become dominant, and man, with his reason destroyed, would become literally a brute.

1. *Dipsomania* illustrates the diseased form of the drink appetite. Clouston defines it as "a morbid, uncontrollable craving for alcohol and other stimulants." "The morbid craving for alcohol is common, and so intense that men who labor under it will gratify it without regard to their health, their wealth, their honor, their wives, their children, or their soul's salvation." Such cases are common in every civilized community. Sometimes they are confined in asylums; but often they are members of society, propagating offspring, assisting in the government of towns, cities and nations, and not infrequently holding offices of responsibility. F., a man fifty years old, began drinking in his youth, but not to excess; was well connected, talented, and secured an excellent education; was admitted to the bar and practiced law for a number of years with great success; meanwhile, he drank harder and harder, and finally began to be irregular in his work and unreliable in his dealings; at last lost his practice, became a burden upon his family, and was sent to a "gold-cure" establishment; returned home "cured" and renewed his practice of law with prospects of success; took to drinking again, however, sank lower and lower, and is at present in an inebriate asylum. S., a laboring man, was at one time a skilled and reliable workman; took to drink, became irregular in his habits, and lost his position; went to still greater excesses, had delirium tremens, lay in drunken stupors for hours and was finally sent to an asylum; was released after a time as sufficiently reformed, but soon began drinking to excess, and ended his life by consuming a large amount of raw alcohol. Such cases could be multiplied indefinitely. Most of them are the same story of moderate drinking, excessive drinking, attempts at reform, relapses, greater excesses, delirium tremens, a prolonged debauch, death.

2. *Kleptomania* illustrates the diseased form of theft. It is an uncontrollable impulse to take whatever strikes the fancy, and is met with among imbeciles, general paralytics, and other classes of the insane. Frequently, however, it is found among people outside of the asylums, women, and especially women of the upper classes, being subject to impulses of this kind. It is the opinion of criminologists that the sense of property in all women is weak, which fact may account for the greater prevalence of kleptomania among them than among men. Their love of dress, and the temptation thrown in their way in the stores and shops to pick up little articles of finery, may also have its influence. An inspector of the Bon Marché, in Paris, is of the opinion that twenty-five per cent. of the shoplifters are habitual offenders who rob whenever they can,

twenty-five per cent. are impelled to the act by want, and fifty per cent. are kleptomaniacs of good social standing and wealth, who simply appropriate pretty things from the counters because they can't resist the temptation to do so.¹ Almost every community has its kleptomaniac among the wealthier class, enjoying immunity from prosecution because of the prominence of the family, or the respect and pity felt for her husband. Mrs. F. was well known throughout a town of 10,000 inhabitants as a shop-lifter and pilferer from every house she entered. Her husband had an understanding with the proprietors of stores that they present bills to him for any articles they knew his wife to take. Similar arrangements existed by which neighbors and others could recover their missing valuables by going to the house. In a city of 100,000 inhabitants, the chief of police was at one time informed that flowers were being systematically stolen from the graves in the principal cemetery. He set officers to work at the case, and discovered that the offender was a prominent woman of the city, who was an all-round shop-lifter and under constant surveillance. She had never been prosecuted, for reasons similar to those given in the case of Mrs. F. The recent case of Mrs. C., who was apprehended in London when she and her husband were just on the point of sailing for their home in the United States, excited international interest. This woman was wealthy and extremely well connected. Yet she had stolen thousands of dollars' worth of tid-bits of every kind as she travelled about from place to place. Even the silver and table linen of hotels had not escaped her desires. She was prosecuted and convicted, but was afterward pronounced irresponsible by high medical authorities and was released from custody to return home.

3. Hypertrophy of the sexual instinct manifests itself in a variety of ways. Thus, in *satyriasis* and *nymphomania*, there is an uncontrollable impulse to satisfy the sexual appetite without regard to circumstances. The desire may be so intense as to lead to murder if opposition is offered to the person. Doubtless many of the rapes, accompanied with the killing of the victims, that occasionally occur in every large community, are committed by this class of individuals. In *Sadism* there is a morbid inclination towards the opposite sex, accompanied with a desire to inflict pain and injury. This is probably but an exaggeration of the rudimentary animal or savage impulse to conquer the woman in connection with sexual union. Thus lust comes to be associated with the most brutal acts, such as beating, cutting, and mutilation. Such crimes as those of "Jack the Ripper," where the murdered women were always mutilated in a

¹ Lombroso: *The Female Offender* (Morrison's Translation), p. 207.

particular fashion, are probably the work of men thus sexually diseased. In *sexual fetishism*, some part of the female body, as the neck, hand or ankle, or some article of dress, or even the natural odor of the body of the female or the perfume she uses, is sufficient to excite voluptuous sensations and produce involuntary pollutions. In *masochism*, *pederasty*, *sodomy*, "*Lesbian love*," etc., there are various gross inversions of the sexual instinct, leading to vices that are unspeakably loathsome. Most of these sexual aberrations are reducible to a primarily strong sexual appetite, rendered more intense by gratification or disease, and given its particular direction by the circumstances surrounding the individual. That they are far from rare in the most highly civilized countries past and current history conclusively proves. Indeed, it is in man's sexual nature that the grossest perversions of character are wrought. The history of moral pathology in the individual and in society would be largely the history of abnormal sex-relations.

4. *Homicidal mania* illustrates the pathological form of all those fundamental egoistic instincts that center in love of power over others,—hatred, revenge, envy, jealousy, etc. There is present an uncontrollable impulse to lay violent hands upon or kill persons indiscriminately, and this impulse is a common symptom in some forms of mental disease. Thus, frequently in epilepsy the patient believes himself to be injured or persecuted by others, and obeys the natural animal impulse to rid himself of his supposed enemies. The murderous impulse manifests itself in the insane forms of *jealousy*, especially in women. An English woman believed that a certain doctor would marry her if his wife were out of the way. She therefore became madly jealous of her rival, and succeeded in putting poison into some cream chocolates that she knew the latter would eat. In *melancholia* the patient sometimes harbors suspicions and broods over supposed wrongs until he becomes possessed of an impulse to kill those about him. Children occasionally show homicidal tendencies, either as a result of antecedent brain disease, or from a morbidly imitative disposition that takes its cue from accounts of murders, sensational stories, etc. *Delirium tremens*, also, sometimes takes the form of an impulse to kill. In short, any of the malevolent passions which incline a person to do his enemy injury, but which in rational minds are usually controlled, may assert themselves in an effort to injure or kill when the mind is deranged.

5. Besides these more typical exaggerations of instinctive tendencies found in mental disease there are numerous others illustrating the same law of regression. Sometimes there are perverted food-appetites that find gratification in eccentric and even monstrous methods. We know from the Hebrew Scriptures

how the mad Nebuchadnezzar "did eat grass as oxen, and his body was wet with the dews of heaven, till his hair was grown like eagles' feathers and his nails like birds' claws." Filth of all kinds may be eaten in certain forms of insanity, while cases have been known in which cannibalism occurred. Probably it would be scientific, as well as charitable, to suppose that the starving men who have been known to eat their comrades were, at least, temporarily deranged. Destructive tendencies frequently appear, *pyromania*, excessive vanity, as in *delusions of grandeur*; morbid suspicions, as in the *mania of persecution*; and, in fact, innumerable exaggerations of traits that lurk in every man's and woman's character, but which are ordinarily repressed and concealed by the higher intellectual and emotional attributes. In all such cases we must suppose that one of two general forces is at work; either the weakened condition of the mind has become the occasion for the outbreak of otherwise unsuspected appetites and passions, or the appetites and passions have gradually asserted a complete dominion over the powers of the mind that usually inhibit and repress them. In the language of Clouston, "The driver may be so weak that he cannot control well-broken horses, or the horses may be so hard-mouthed that no driver can pull them up."

The following explanation given by Clouston of what he calls *Animal and Organic Impulse* is confirmatory of the point of view taken in this section: "Under this term I include all the uncontrollable impulses towards sexual intercourse, masturbation, sodomy, rape on children, bestiality, etc. The perverted instincts, appetites and feelings shown in urine drinking, eating stones, rags, clay, nails, etc., come under this heading, too. *There are few cases of mental disease where some appetite or instinct is not in some degree perverted or paralyzed. But there are cases where such things are so prominent as to constitute disease.*¹ I have a patient who assures me that his desire to masturbate is an irresistible craving which he has no power to control. Here is a girl who rubs her thighs together to produce sexual excitement the moment she sees a man. Here is a case of nymphomania, who rushes towards any man she sees, and can scarcely be held by two attendants. I believe there are cases where there is an irresistible impulse towards sodomy and incest. Many of the men who commit rape on children are insane. I lately had to give evidence at the Carlisle Assizes about the insanity of a medical man who had tried to commit rape on three children under age in succession. No doubt he had the delusion that God had in some occult way revealed to him that he should beget a male child, and had sent the little girls to

¹Italics mine.

him for this purpose; but he was practicing his profession up to the commission of the act. I have referred to the case of the young woman who had an impulse to eat clay and dirt every time she menstruated. She could not help it, and had no such tendency between. A shoemaker patient in the Prestwich asylum swallowed a few shoe nails every day, and, which was strange, was none the worse. There is an infinite variety of such impulses."¹

§ 6. PREPOTENT RETROGRESSION.

The different organic and psychical elements retrograde concomitantly, and the extent of the retrogression is determined by the grade or level of the principal element involved. An illustration drawn from the nervous system will, perhaps, serve to make this part of the discussion clearer. According to the segmental view of the spinal axis we may regard it as made up of three grades of meristic levels. First, there is a series of levels below the medulla, in which the organs represented by each segment have a certain independence, so far as nervous function is concerned. These sub-medullary levels are concerned only with the lower portions of the body. Next, there is the series of levels constituting the medulla, which, by the intermediation of centripetal fibres are brought into relation with the lower part of the body and its limbs, with the upper part of the body and its limbs, with many of the visceral structures, and with the organs of special sense. Finally, there is the series of levels constituting the cerebellum and cerebrum. These contain such a vast number of highly differentiated structures that they are not only brought into relation with every part of the nervous system, but also of themselves constitute that infinitely complex mechanism that has for its peculiar office the mediation of psychical activity. Now, if a variation should occur in one of the sub-medullary levels it would affect only those organs dependent upon that particular segment. If the variation should occur in the medullary levels, however, it might affect organs in the lower part of the body, in the upper part of the body, in the viscera, or in the structures concerned with special sensation. Finally, if the variation should occur in the brain levels themselves it might involve organs of any part of the body or brain.

Teratology is also suggestive in this connection. In human "monsters" there seems to be some relation between the number of anomalies and the gravity of the primary defect. The illustrations in teratological works such as St. Hilaire's, Forster's and Otto's, as well as the specimens in pathological

¹ *Mental Diseases*, p. 331.

museums, impress one with the large number of anomalies that appear in the worst types of monstrosity, such as acephaly, hemicephaly, etc. The detailed descriptions given by Otto¹ of two hundred human "monsters" have been examined with a view of determining whether such a general impression is correct. The cases examined fall into three groups: 1—those in which the primary affection was cephalic; 2—those in which the primary affection was visceral; and 3—those in which the primary affection was mainly in the limbs. The number of anomalies in each case was counted, omitting the primary affection. The following is the number of cases falling in each group, together with the average number of anomalies: 1—Brain, 70 cases, with an average of 7.3 anomalies; 2—Viscera, 56 cases, with an average of 4 anomalies; and 3—Limbs, 76 cases, with an average of 3.8 anomalies. Some additional weight is lent to these facts by the conclusions of criminal anthropologists and alienists as to the relation between psychical anomalies and the extent of the degenerative process in idiots, lunatics, and other defectives.

On the neurological side, the Hughlings-Jackson² theory of brain levels supports the law here referred to. This theory grew out of an attempt to explain the mental phenomena of epilepsy, insanity, etc. It supposes three levels of brain development, which mediate respectively three general classes of psychical phenomena. The *lowest level*, which includes the gray matter of the spinal cord and its extension into the brain proper as far as the oculo-motor nucleus, mediates actions of an organized or habitual character, such as certain movements of the limbs, the reflex visceral activities, swallowing, respiration, peristalsis of the intestines, vaso-motor and cardiac action, and the reflex movements of the pupils. This level of mind, therefore, has to do with the vegetative functions of the human organism. It belongs to the great sphere of the sub-conscious mind. The *middle level*, which includes the motor areas of the brain found in the two central convolutions bounding the fissure of Rolando and in other contiguous portions more or less indefinitely determined, mediate the various voluntary movements, such as those of the tongue, lips, arms, legs, and trunk. The *highest level* embraces the præcentral and occipital regions of the brain and is pre-eminently the organ of the self-conscious mind. None of these levels is altogether independent of the others. The nervous centers of the lowest level represent impressions and movements of all parts of the body most nearly directly, and are first in order of development from an evolu-

¹ *Monstrorum Sexcentorum Descriptio Anatomica.*

² *Journal of Medical Science*, Vol. XXXIV, p. 359.

tionary standpoint. The centers of the middle level re-represent what has been received from the lowest level, and are, in a sense, the outgrowth of the latter, while the centers of the highest level re-re-represent the impressions received by all the lower centers and work them up into self-conscious mind. That is to say, there is a kind of psychical hierarchy, the lowest centers controlling the vegetative life; the middle centers controlling the motor life, while at the same time being inter-related with the vegetative life; and the highest centers mediating the intellectual and moral life proper, while at the same time being inter-related with all that is below them.

The importance of this view of psychical phenomena lies in the fact that it recognizes substantially the laws that we have just been discussing as operative also on the mental side. That is to say, in mental diseases the higher the level affected, the more diffuse and radical will be the psychical disequilibrium produced. In general, this is confirmed in the well known distinctions between the peripheral and central lesions in brain disease. For example, locomotor ataxy produced by syphilitic infection may at first be due to the degeneration of a special region of the spinal cord. At this stage, there is a simple inability to co-ordinate the movements of the lower limbs, and the mind proper is not impaired. But as the degeneration advances upward to the higher levels the symptoms become more and more grave, until at last, when the centers that mediate the larger apperception groups become affected, profound mental and moral disturbances occur. Another important implication in Hughlings-Jackson's view is that of the greater instability of brain centers, and the concomitant psychical phenomena of the highest and most recently organized levels. According to this view, those centers which have been the last to develop and which are therefore the highest will be the first to yield to degenerative influences, since they are the most unstable.

Now, the moral sense, as we find it in civilized man, marks the culmination of the evolutionary process. Morality, in the race as in the individual, implies a high degree of complexity in the psychical organization. To be absolutely moral would necessitate apperceptions of the infinite; to be relatively so necessitates the apperception of very intricate personal and social relations. Representing the highest level of psychical organization, the moral sense is immanent throughout the entire complex of ideas and emotions. Just as the highest centers of the brain discharge their energy along every nerve-fibre and into every cell, so do the centers of moral consciousness discharge their energy along every channel of feeling. And just as the degeneration of the highest brain-centers throws out of equilibrium the entire psychical mechanism, so does the degeneration of the

moral consciousness destroy the soul. This is not a mere speculation. To say nothing of the testimony of religious teaching everywhere, or of that supplied in the history of decadent civilizations, there are all about us examples of moral degeneration which are accompanied by mental and physical degeneration. The immorality of the drunkard destroys his mind and his body by inducing morbid processes in the nervous and other tissues, by causing defective inhibition of other appetites, and by destroying gradually all that power of harmonious adjustment to environment which the race has built up. The drunkard is usually licentious and gluttonous, he is improvident, and he is generally deficient in his moral and intellectual perceptions. The same is true of opium eaters and all other victims of stimulants and narcotics. The immorality of the thief or of the dishonest business man affects the entire character. The sense of personal honor is one of the highest attainments in evolution. Destroy this sense, and almost everything else comes easy. Theft or dishonesty of any kind is always attended with falsehood and deception, and is often attended with such a loss of self-respect that vice of every description is recklessly indulged in. The immorality of unchaste men and women also affects the entire character. Sexual offenders of both sexes are notoriously untruthful, often dishonest, and sometimes cruel and depraved in every way. It is not entirely due to social ostracism that a woman who loses her virtue usually goes rapidly to the extremes of degradation, or that a business man who loses his sense of honor often takes to gambling, drinking, etc. In all such cases, the very highest apperceptions of consciousness are disturbed, and it is no wonder that a general moral obliquity results.

Again, and finally, just as the highest brain centers are the most unstable and the first to feel the effects of degenerative influences, so is the moral consciousness the most unstable and the most sensitive to stimuli of a harmful character. Illustrations of this principle are numerous. The moral natures of men everywhere show the effects of such an instability. The sudden break-downs of character frequently astonish and dismay society. A man fifty years old, who has been a good husband and father and an upright business man, decamps to some foreign country, and his relatives and friends are compelled to face the fact that he has defaulted for \$250,000. A little later, and humiliation is increased a thousand-fold by the discovery that he has spent a large part of the money upon an adulteress and that he has now left home and family in the company of this woman. A young man who has been the trusted messenger of a metropolitan bank, and who has enjoyed the confidence and even the personal affection of his employ-

ers and associates, suddenly disappears with \$30,000 of the bank's money. A minister who has an extensive reputation as a scholar, college president, and active citizen, and who is the husband and father in a cultivated household, puts all these things out of his life forever by eloping with a young woman who has been employed in his office. Such cases might be indefinitely multiplied. Now there is a disposition among some criminologists to explain these sudden lapses in moral conduct as symptoms of mental disease; and there is doubtless considerable truth in such an explanation in certain cases. But from the standpoint of moral evolution, which regards the sense of property, conjugal fidelity, and other elements of character peculiar to civilized communities as recent and unstable acquisitions, a different explanation is possible. From such a standpoint, it is reasonable to suppose that the susceptibility to temptations among men and women is a symptom not of mental disease but of a moral diathesis not yet fully established, and therefore unstable.

§ 7. CONCLUSIONS.

The proximate causes of that wide class of retrogressive phenomena variously classified as immorality, vice, crime and sin, may be summarized as follows:

1. *The temporarily incomplete elimination of qualities belonging to lower stages of development.* This type of immorality is illustrated in children whose moral nature has not yet adjusted itself to the standards of adult life; and in those adults whose development has been delayed, though not stopped, by unfavorable surroundings. Such immorality is transitional and temporary. It is analogous to the keel-shaped thorax and triradiate pelvis of childhood, and, like the latter, will be transformed at the proper time if the surrounding conditions be healthful.

2. *The total arrest of the eliminative process, leading to the persistence of qualities that should normally disappear.* This type of immorality is due to the fact that development has been arrested at some point in embryonic or post-natal life, thus perpetuating the psychical disposition of a normally transitional period. This marks the first stage of moral retrogression, and is illustrated in the delinquent classes generally, such as vagrants, thieves, sexual offenders, assaulters, etc. It is analogous to the numerous types of organic arrest. Thus the keel-shaped thorax referred to above may persist in what is called the pigeon-breast; the triradiate pelvis may persist in the rickety pelvis that, in woman, unfits for the reproduction functions; the foetal lanugo may persist in the hairy covering that occasionally appears in men and women, etc.

3. *The hypertrophy or disease of abnormally persistent quali-*

ties, leading to a pathological condition of the moral nature. This type of immorality is due to very complex and obscure causes, but undoubtedly the simple persistence of animal and sub-human traits amidst an environment to which they are altogether alien is a prominent one. Just as the physical organism is apt to become diseased in surroundings to which it cannot adapt itself, so is the moral nature apt to become diseased in environments to which it cannot adapt itself. It is for this reason that an immoral character becomes self-destructive. Its existence depends upon harmonious adaptation to surroundings, which, in civilized communities, are essentially moral; and when this adaptation is impossible disease and death inevitably result. Moreover, it is undoubtedly true, as many authorities have asserted, from Morel down, that immorality accumulates through heredity. Families and communities degenerate from such vices as drunkenness, licentiousness, and the use of narcotics. It is not surprising, therefore, that the children of such families and communities should sometimes become morally insane. The higher and more unstable elements of the psyche are destroyed, the process of psychical elimination is stopped, and all the animal and savage traits of character assert themselves and dominate the individual. Here retrogression is far advanced, as is illustrated in such monstrosities of character as dipsomania, kleptomania, sexual perversion, and all those neurotic and unstable types of mind that constitute the decadent elements of society. This type of immorality has its analogues in the physical monstrosities that either make life abortive, or disfigure it with such blemishes as webbed hands and feet, cervical and facial fissures, hermaphroditism, etc.

No claim is here made to an original view of the nature of immorality. The idea that men's nature bears the traces of ancestral conduct that must somehow be eliminated is as old as the doctrine of "original sin." While the idea that immorality tends to become persistent and, finally, self-annihilating, is but a re-reading of the sentence "The wages of sin is death." Nor is it claimed that such a view explains the ultimate causes of immorality. What is back of all these phenomena of progress and retrogression is a matter of faith and not of knowledge. As in any other question to which the theory of evolution may be applied, it is the interpretation of facts that is changed, and not the facts themselves. The eternal truth that there is something in the universe that makes for righteousness, and something in the universe that makes for sin, will remain after science has said its last words. The most obvious implication of such a view of immorality is the unity and immutability of law. To say that the vices and crimes of men may be explained by nat-

ural methods is not to ignore supernatural methods. It is merely to assert the truth, which men have been too slow to learn, that *natural* laws are also *supernatural* laws. Both materialistic science and dogmatic religion are atheistic when it comes to an interpretation of nature, for neither believes that God has anything to do with it. How else could such antinomies as "natural law" and "spiritual law," "natural man" and "spiritual man" have been invented? To place the subject of immorality upon a basis at once natural and supernatural is the first desideratum in moral culture. When this has been accomplished men will be willing to learn Nature's methods of dealing with their vices and crimes, and they will at the same time perceive that these methods are too intelligent and beneficent to be explained on mechanical or chemical principles.

Considering the subject of immorality from such a point of view, what would moral pedagogy adopt as its guiding principles?

1. It would recognize that a large proportion of immoral tendencies are due to the incomplete elimination of animal and sub-human traits. These, however, are in process of elimination, and, under normal conditions, may be expected to recapitulate the phylogenetic process until the individual realizes the type of his race and civilization. That is to say, the process will be analogous to what takes place in the organism where such vestiges of an animal ancestry as the sublingua, palatal ridges, thyroid gland, etc., become more and more reduced as the child grows into the physical type of his race. Such a recognition would make moral education at once rational and optimistic. The task would be a hopeful one, because Nature would be on the side of the parent or educator; and it would also be a definite one, because both the conditions to be met and the means of meeting them would be better understood.

2. It would recognize that education as a moral agency must be chiefly serviceable during the periods of life that recapitulate the great groups of genetic instincts and habits. For it is then that the transforming influences of civilization must especially cope with hereditary tendencies, and it is then that the latter will be eliminated, if at all. Such are the periods of childhood and adolescence. The first of these is rife with food appetites, explosive emotions, and excessive egoism generally. It is here that gluttony, theft, deception, anger, stubbornness, destructiveness, filthiness, cruelty, and vagrancy are apt to reveal themselves. The dangers of the second period center in the awakening sex-consciousness. Here appear tendencies to sexual impurity, display and extravagance in dress, vanity, jealousy, and envy. The stress of moral education should therefore be placed upon these crises of development.

3. It would choose its methods of moral training in conformity with the suggestions of Nature, whose pedagogics are being reinterpreted by modern science, and especially by genetic psychology. It is believed that some of these methods have been emphasized in this study. First is that of conservatism. We have found that Nature works slowly and patiently. She has never extirpated a single organic structure or psychical quality outright, but has reduced them gradually. She has been satisfied to spend thousands of years in eliminating the animal and savage instincts of mankind, and even at this late day allows the children of civilization to pass through a savage or half-savage state, preliminary to the refinements of civilization. This means something to the parents and educators who will think about it. There is certainly prevalent a tendency to force moral and religious training upon children. The "thou shalt not" of moral discipline is too often concerned with the repression of healthy instincts. Children are forbidden to range the fields, climb trees, paddle in the water, and begrime themselves with dirt; they are cooped up in the prim little kindergartens, watched over by nurse girls, or led around in curls and smug costumes by dainty mothers. Truancy from school is made an offense punishable by confinement in truant schools; and boys whose instincts are often healthier than those of the officials who try to control them are made to believe that it is a crime to love the woods and watercourses better than the tedium of a school-room. It would be difficult to devise a surer way of emasculating childhood and of producing a precocious and morbid manhood and womanhood. Again, Nature eliminates by causing the organ to cease functioning and then allowing it to atrophy by withdrawing its nourishment. Here is suggested the rational process of moral training during the first period of development. It is not didactic moral or religious instruction that is needed in childhood so much as it is the prevention of injurious organs from functioning. This means that in the school and home the appetites and passions of children may best be reduced, not by laying down rules and preaching to children, but by removing the causes that excite their appetites and passions. If an organic structure begins to be reduced in size as soon as it ceases to function, may it not be that a disposition to lie or steal, or a tendency to outbreaks of temper, can be reduced in the same way? The exercise of continual caution in not tempting children to stubbornness, destructiveness, theft, deceit, anger, envy, jealousy, etc., sums up the pedagogics not only of common sense, but also of evolutionary law. That is to say, the moral pedagogy of the first period of life is revealed in Nature's method of disuse and atrophy. *Where function of the immoral diathesis does not occur, reduction*

must inevitably follow. Finally, Nature's third method of elimination is that of the transformation of function. Here is suggested the rational process of moral training during the second period of development, namely, adolescence. This is the period when the whole egoistic nature normally undergoes transformation in the direction of altruism. All the feelings of conjugal, parental, and social affection that the race has built up through sex relationships and the love and care of offspring begin to awaken. The immoral tendencies incidental to such an awakening are peculiarly susceptible to the transforming process, for the very reason that so many healthy and useful directions may be given to the instincts that excite them. This is the period, therefore, for definite moral and religious instruction. Appeals may be made both to the emotions and the reason that would be utterly ineffectual in childhood. Religious teachers have everywhere recognized this fact, and have made the beginning of adolescence the initiatory stage to a religious life. Studies by Drs. Hall, Starbuck, Lancaster, and others, have discovered the psychological rationale of such a method, in the fact that adolescents are normally subject to marked religious experiences. We have here suggested, therefore, the method and the culture-material for adolescent education along moral lines. The former is the transformation of the sex-diathe-sis in the direction of more advantageous functions; and the latter is moral precept and exhortation, and especially religious culture.

But, as we have seen, the elimination of the immoral diathesis is not the entire problem. When immorality becomes persistent and exaggerated into disease, Nature shifts the process of elimination from organs to individuals. Immorality, instead of being a phenomenon of incompleting development, becomes a phenomenon of arrested development and retrogression. It is of course impossible to separate the types of immorality. They blend into one another insensibly. It is therefore also impossible to say when moral education ceases to be effective. Certainly, human effort in this direction should never cease, for here as elsewhere faith should be larger than knowledge. Nevertheless, the cause of moral progress will be furthered by a recognition of the stern truth that moral retrogression, like physical retrogression, may advance so far that the extinction of the individual, community, or race, becomes certain. We know that physical degeneration reaches a point where the individual must perish as such, and where the propagation of offspring is stopped because Nature has rendered him sterile. Every type of monstrosity illustrates this, from hermaphroditism to the forms that are so misshapen that they cannot survive birth. On the psychical side, idiocy and insanity are illustrative; as

are also the graver moral delinquencies, such as drunkenness and licentiousness. Paul declared: "Neither fornicators . . . nor adulterers . . . nor abusers of themselves with mankind . . . nor thieves . . . nor drunkards, shall inherit the kingdom of God." The testimony of the scientist who has investigated the laws of organic and psychical development is not less emphatic.

Without, therefore, discarding indiscriminately the moral agencies that are at present employed in dealing with the worst types of immorality, is it not time that civilized society should lay the stress of its work upon the larger aspects of social regeneration, rather than upon the minutiae of individual regeneration? Is it not time that Nature's methods of eliminating individuals as well as organs should be recognized and adopted? If it is the part of parents and educators to assist Nature in eliminating the forms of immorality that are due to incompleting development, why should it not be the part of society to assist in eliminating individuals and stocks in which immorality has become persistent and diseased? This, to be sure, is an enormously complex and difficult problem; but it is one that will sometime have to be met. Its solution must be found along two lines: (1) The removal of vicious and criminal persons from society, and (2) the prevention of propagation of their stock. Both of these methods are recognized at present in the imprisonment and execution of offenders, and in the prevention of idiots, etc., from marrying. But the methods must have a vastly wider application. The vicious and criminal must be weeded out and segregated permanently, and not, as now, for a term of a few years. There is certainly no greater legal travesty than that illustrated by the presence in such countries as England and the United States of thousands of criminals mingling with society, known to the police as "habitual offenders," but unmolested because they have served their "time" and have succeeded in covering up their tracks. Recently, a noted pick-pocket known to the police circles of all the larger cities of the United States was seen in a certain city and arrested on suspicion. Nothing could be proved against him, however, and he was dismissed on condition that he leave the town; this, too, in the face of the fact that his picture has been in the rogue's gallery for many years, and that his career since boyhood has been divided between imprisonment and lawlessness.

Again, the vicious and criminal must be prevented from propagating their kind. If nature is busily at work rendering sterile such classes as the drunkards, roués and prostitutes, why should not society supplement the efforts of Nature and complete the process? Here, again, society enacts thousands of judicial travesties yearly in fining such habitual delinquents and then turn-

ing them loose to continue their gratifications of appetite and lust, meanwhile begetting offspring that shall spread the curse of evil into other generations. The segregation of persistent and diseased immorality, therefore; the prevention of marriage among delinquent classes; and, in extreme cases, perhaps, stirpiculture, are the methods that Nature suggests to society in any rational attempt to effect its own regeneration. However stern such methods may seem, and however difficult of application, they are not more stern or difficult than the forces that are everywhere in nature making for progress and against retrogression. Here, as elsewhere, that individual and that society which interprets the laws of Nature and applies them, is not only wise, but is also a benefactor to the present and future generations.